Presentation

FULL DETAILS AND TRANSCRIPT

Alternating Worked Examples with Practice

May 2008

Topic: How to Organize Your Teaching

Practice: Examples With Practice

Highlights

- Research studies have found that giving students examples of worked out solutions before each new problem is much more effective than simply providing a few examples followed by a series of problems.
- Students are often overconfident about what they think they understand. Providing worked out solutions can break this "illusion of knowing."
- By providing a worked example before each new problem to solve, students are given access to better problem solving strategies and can develop their own strategies more effectively.

Full Transcript

Slide #1

Welcome to the overview on Alternating Worked Examples with Practice.

Slide #2

Here are a few tips before we get started…

Use the slide titles in the "outline" to jump to a specific section.

Click on the "script" tab to follow along with the narration.

Use the controls at the bottom to easily stop and start the presentation.

Download any related files in the "attachments" folder.

And show or hide the navigation using the windows icon.

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Mr. Potts introduces new algebra problems by demonstrating on the board how to solve them and then gives his students a series of problems to do on their own.

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As he walks around the room, he notices that most of his students are struggling with awkward solutions to the problem and not applying the strategies he has demonstrated.

Slide #5

He double-checks his lesson and feels certain that he's explained the process in a way the students can follow. He wonders what more he can do to help them.

Slide #6

What does it mean to alternate worked examples with practice?

Slide #7

Research studies have found that giving students examples of worked out solutions before each new problem is much more effective than simply providing a few examples followed by a series of problems.

Slide #8

When teachers alternate examples with practice, students gain more insight into "expert thinking" and are better able to develop problem-solving strategies.

Slide #9

Students are notoriously poor at identifying what they don't understand. Many times, if they understand a little of what they are working on, they think they possess a deeper understanding than they actually have. This "illusion of knowing" is an obstacle to learning. By providing a worked example before each new problem to solve, students are alerted that the upcoming problem has something new that needs to be understood before attempting it. Without this alert, students might skim examples, assuming they know enough to solve every problem on the page.

Slide #10

Worked examples also can be used to demonstrate how different strategies may be used to solve similar types of problems. Providing examples of solved problems can illustrate multiple solution strategies when they exist.

Slide #11

Ultimately, students learn more by going back and forth between studying solved problems and then solving similar ones than by tackling a set of problems after only one or two examples at the beginning of a class or homework set.

Slide #12

There are a variety of ways to alternate worked examples with problem-solving.

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Alternating worked examples looks different depending on the subject area. A math or chemistry teacher, for example, can demonstrate how to work a problem before having their students solve a single new, similar problem on their own. The teacher can then check for understanding before following with another round of demonstration and practice.

Slide #14

A social studies teacher might demonstrate how to evaluate a primary source document and then have her students analyze their own. The teacher would then demonstrate the process again with a different primary source and give her students another opportunity for practice.

Slide #15

Teachers can also provide worked out solutions for every other problem in homework assignments.

Slide #16

Unfortunately, most textbooks don't provide enough solved problems, but teachers can work together in teams to prepare homework packages with their own worked examples alternating with the textbook's problems to solve.

Teachers can take examples from the instructional section of the textbook and intersperse them into homework sets.

Slide #17

In conclusion

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Having students study successful problem-solving strategies before each attempt at their own problem-solving strengthens their skills and improves their learning.

Slide #19

Mr. Potts began alternating worked examples on the board with individual class assignments and found that over time, more and more students were using efficient strategies, getting correct answers, and solving problems more rapidly!

Slide #20

To learn more about alternating worked examples with practice, please explore the additional resources on the Doing What Works website.